

What is claimed is:

1. A fuel cell system provided with a fuel cell including an anode electrode and a cathode electrode disposed opposingly with an electrolyte interposed therebetween, for obtaining electromotive force by supplying fuel gas containing hydrogen to said anode electrode while supplying oxygen-containing gas containing oxygen to said cathode electrode, said fuel cell system comprising:

a gas/liquid separator for separating discharged components discharged from said fuel cell into gas components and water so that said water is recovered; and

a flow rate control unit for controlling a flow rate of a cooling medium supplied to said gas/liquid separator for performing heat exchange with said discharged components, depending on an operation condition of said fuel cell.

2. The fuel cell system according to claim 1, wherein said flow rate control unit includes:

a pump for varying said flow rate of said cooling medium supplied to said gas/liquid separator;

a detecting means for detecting said operation condition of said fuel cell; and

a control unit for controlling output of said pump on the basis of information detected by said detecting means.

3. The fuel cell system according to claim 2, wherein

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said detecting means includes a sensor for detecting at least any one of output of said fuel cell, temperature of said discharged components introduced into said gas/liquid separator, temperature of said gas components discharged from said gas/liquid separator, temperature of said water recovered by said gas/liquid separator, and temperature of said cooling medium.

10 4. A fuel cell system provided with a fuel cell including an anode electrode and a cathode electrode disposed opposingly with an electrolyte interposed therebetween, for obtaining electromotive force by supplying fuel gas containing hydrogen to said anode electrode while supplying oxygen-containing gas containing oxygen to said cathode electrode, said fuel cell system comprising:

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a gas/liquid separator for separating discharged components discharged from said fuel cell into gas components and water so that said water is recovered; and

20 a temperature control unit for controlling temperature of a cooling medium supplied to said gas/liquid separator for performing heat exchange with said discharged components, depending on an operation condition of said fuel cell.

25 5. The fuel cell system according to claim 4, wherein said temperature control unit includes:

a radiator arranged for a piping tube for circulating

and supplying said cooling medium to said gas/liquid separator;

a cooling fan provided together with said radiator;

a detecting means for detecting said operation

condition of said ~~fuel~~ fuel cell; and

a control unit for controlling output of said cooling fan on the basis of information detected by said detecting means.

6. The fuel cell system according to claim 5, wherein said detecting means includes a sensor for detecting at least any one of output of said fuel cell, temperature of said discharged components introduced into said gas/liquid separator, temperature of said gas components discharged from said gas/liquid separator, temperature of said water recovered by said gas/liquid separator, and said temperature of said cooling medium.

7. A fuel cell system provided with a fuel cell including an anode electrode and a cathode electrode disposed opposingly with an electrolyte interposed therebetween, for obtaining electromotive force by supplying fuel gas containing hydrogen to said anode electrode while supplying oxygen-containing gas containing oxygen to said cathode electrode, said fuel cell system comprising:

a gas/liquid separator for separating discharged components discharged from said fuel cell into gas

components and water so that said water is recovered;

a flow rate control unit for controlling a flow rate of a cooling medium supplied to said gas/liquid separator for performing heat exchange with said discharged components,

depending on an operation condition of said fuel cell; and

a temperature control unit for controlling temperature of said cooling medium depending on said operation condition of said fuel cell.

8. The fuel cell system according to claim 7, wherein said flow rate control unit includes:

a pump for varying said flow rate of said cooling medium supplied to said gas/liquid separator;

a detecting means for detecting said operation condition of said fuel cell; and

a control unit for controlling output of said pump on the basis of information detected by said detecting means.

9. The fuel cell system according to claim 7, wherein said temperature control unit includes:

a radiator arranged for a piping tube for circulating and supplying said cooling medium to said gas/liquid separator;

a cooling fan provided together with said radiator;

a detecting means for detecting said operation condition of said fuel cell; and

a control unit for controlling output of said cooling

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cont fan on the basis of information detected by said detecting means.

10. A gas/liquid separation method for a fuel cell system for supplying, to a gas/liquid separator, discharged components discharged from a fuel cell including an anode electrode and a cathode electrode disposed opposingly with an electrolyte interposed therebetween, and separating said discharged components into gas components and water, said method comprising the steps of:

detecting an operation condition of said fuel cell; and controlling a flow rate of a cooling medium supplied to said gas/liquid separator for performing heat exchange with said discharged components, depending on said operation condition of said detected fuel cell.

11. The gas/liquid separation method for said fuel cell according to claim 10, wherein said operation condition of said fuel cell is at least any one of output of said fuel cell, temperature of said discharged components introduced into said gas/liquid separator, temperature of said gas components discharged from said gas/liquid separator, temperature of said water recovered by said gas/liquid separator, and temperature of said cooling medium.

12. A gas/liquid separation method for a fuel cell system for supplying, to a gas/liquid separator, discharged

components discharged from a fuel cell including an anode electrode and a cathode electrode disposed opposingly with an electrolyte interposed therebetween, and separating said discharged components into gas components and water, said method comprising the steps of:

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detecting an operation condition of said fuel cell; and  
controlling temperature of a cooling medium supplied to said gas/liquid separator for performing heat exchange with said discharged components, depending on said detected operation condition of said fuel cell.

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13. The gas/liquid separation method for said fuel cell according to claim 12, wherein said operation condition of said fuel cell is at least any one of output of said fuel cell, temperature of said discharged components introduced into said gas/liquid separator, temperature of said gas components discharged from said gas/liquid separator, temperature of said water recovered by said gas/liquid separator, and said temperature of said cooling medium.

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